
LANIER FORD SHAVER & PAYNE

P.C.

200 West Side Square, Suite 5000
Huntsville, Alabama 35801
T: 256.535.1100 F: 256.533.9322

U.S. NON-PROVISIONAL PATENT APPLICATION

FOR

MIRROR SPOT WITHIN MIRROR

BY

ROGER G. MINOR

RONALD FREEMAN

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TITLE: MIRROR SPOT WITHIN MIRROR

REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Provisional Patent Application Serial Number 60/458,225, entitled "Mirror Spot Within Mirror," filed March 27, 2003.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention generally relates to mirrors. In particular, the present invention relates to mirror constructions for use in transportation vehicles. More particularly, the present invention relates to a new single construct mirror with an embedded mirror within a mirror, wherein said embedded mirror operates to reflect a wider viewing area than the main portion of such mirror.

Description of the Prior Art

[0003] Rearview mirrors are essential for the safe operation of motor vehicles. Ordinary flat rearview mirrors are known to have a "blind spot" located adjacent the vehicle and to the rear of the driver. Such "blind spot" often leads to accidents, particularly when a driver is changing lanes and is unaware of a nearby motorist or other traffic.

[0004] Numerous solutions to eliminate such a "blind spot" have evolved, including the use of convex mirrors adhered to the surface of a flat rearview mirror to enhance the viewing area of the mirror. Further still, other attempts have been made to add additional mirrors at slightly offset angles to incorporate the "blind spot" in the reflected view of the

rearview mirror. Still other efforts have tried to incorporate curved mirrors in a manner similar to the offset angled mirrors to further enhance the width of the reflected view in the rearview mirror.

[0005] Most of these solutions, however, result in either a reduction of the useful viewing area of the flat rearview mirror, the addition of additional mirrors which increases manufacturing costs and complexity, or the inclusion of complex curved surfaces on mirrors which similarly drive up manufacturing costs.

[0006] It is, therefore, desirable to provide a flat rearview mirror incorporating the benefits of an enhanced viewing area without the need for additional constructions or complicated construction techniques. Therefore, the present invention provides a single construction mirror within a mirror that provides an enhanced reflected viewing area within one portion of the mirror while maintaining a sufficient reflected viewing area in the remainder of the mirror to allow for safe operation of a motor vehicle including the present invention.

SUMMARY OF THE INVENTION

[0007] The present invention recognizes and addresses various of the foregoing limitations and drawbacks, and others, concerning mirrors and more particularly, rearview mirrors for motor vehicle operations. Therefore, the present invention is directed to a single construction rearview mirror within a mirror that provides an enhanced reflected viewing area within one portion of the mirror while maintaining a sufficient reflected viewing area in the remainder of the mirror to allow for safe operation of a motor vehicle including the

present invention.

[0008] It is, therefor, a principle object of the subject invention to provide a mirror within a mirror. More particularly, it is an object of the present invention to provide a single construction mirror incorporating a secondary mirror for enhanced reflected viewing area. In such context, it is still a more particular object of the present invention to provide a single construct mirror within a mirror whose reflective surface is flat.

[0009] Still further, it is a principle object of this invention to provide a rearview mirror having an improved ability to eliminate any "blind spot". It is a further object of the present invention to provide such "blind spot" elimination in a single construct of simple design and manufacture. In such context, it is an object of the present invention to provide such a rearview mirror that is cost-efficient to manufacture.

[0010] Additional objects and advantages of the invention are set forth in, or will be apparent to those of ordinary skill in the art from, the detailed description as follows. Also, it should be further appreciated that modifications and variations to the specifically illustrated and discussed features and materials hereof may be practiced in various embodiments and uses of this invention without departing from the spirit and scope thereof, by virtue of present reference thereto. Such variations may include, but are not limited to, substitutions of the equivalent means, features, and materials for those shown or discussed, and the functional or positional reversal of various parts, features, or the like.

[0011] Still further, it is to be understood that different embodiments, as well as different presently preferred embodiments, of this invention, may include various combinations or configurations of presently disclosed features, elements, or their equivalents (including combinations of features or configurations thereof not expressly shown in the figures or stated in the detailed description).

[0012] These and other features, aspects and advantages of the present invention will become better understood with reference to the following descriptions and appended claims. The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an embodiment of the invention and, together with the descriptions, serve to explain the principles of the invention.

[0013] In one exemplary embodiment, there may be provided a single construction mirror encompassing a secondary mirror capable of enhancing the reflected viewing area to include any blind spots not revealed in the primary mirror. Such secondary mirror may be included at any location on the surface of the primary mirror as desired by the manufacturer or as required for use with a particular vehicle. Both the primary mirror and the secondary mirror (the mirror within a mirror) have a flat front reflective surface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] A full and enabling disclosure of the present invention, including the best mode thereof, directed to one of ordinary skill in the art, is set forth in the specification, which makes reference to the appended figures, in which:

[0015] FIG. 1 is a plain view of a mirror within a mirror as provided in the present invention;

[0016] FIG. 2 is a plain view of the mirror within a mirror of FIG. 1, wherein the secondary mirror is located in a different location within the primary mirror; and

[0017] FIG. 3 is a partial side view of the mirror within a mirror as depicted in FIGS. 1 and 2 showing the concave rear surface of the secondary mirror of the present invention.

[0018] Repeat use of reference characters throughout the present specification and appended drawings is intended to represent the same or analogous features or elements of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] Reference will now be made in detail to presently preferred embodiments of the invention, examples of which are fully represented in the accompanying drawings. Such examples are provided by way of an explanation of the invention, not limitation thereof. In fact, it will be apparent to those skilled in the art that various modifications and variations can be made in the present invention, without departing from the spirit and scope thereof. For instance, features illustrated or described as part of one embodiment can be used on another embodiment to yield a still further embodiment. Still further, variations in selection of materials and/or characteristics may be practiced, to satisfy particular desired user criteria. Thus, it is intended that the present invention cover such modifications and variations as

come within the scope of the present features and their equivalents.

[0020] As disclosed above, the present invention is particularly concerned with a single construct mirror within a mirror **10** for use with motor vehicles, such construct **10** providing both normal and enhanced rearward views thus eliminating any blind spots. As seen in **FIGS. 1** and **2**, such a construct **10** may provide a primary mirror **12** that incorporates therein a secondary mirror **14** capable of reflecting a wider viewing area. Such secondary mirror **14** (as depicted) may be located in any position within the primary mirror **12** as desired by the manufacturer or as required for use with a particular motor vehicle. Further, while such secondary mirror **14** may be any shape desired, a circular shape is preferred to reduce any distortion introduced to the reflected image.

[0021] As best seen in **FIG. 3**, the front reflective surface **16** of the primary mirror **12** is generally flat. Similarly, the front surface **18** of the secondary mirror **14** is also generally flat and co-planar with the front reflective surface **16** of the primary mirror **12**. Such a characteristic of the present invention is inherently achieved by the construction process.

[0022] A generally planar piece of glass, plastic or other suitable material may be used as the basis for the present invention. In one preferred embodiment, a glass sheet **20** of appropriate size is used and an area on the back surface **22** of such glass sheet is ground out to form a generally concave circular indentation **24** into the glass sheet **20**. The glass sheet **20** is then mirrored typically by applying a coating such as silver or another reflective material to the back face of the glass sheet including within the concave circular indentation **24**. Such indentation **24** forms a convex reflective surface when viewed from the front of

the mirrored glass sheet, but in fact provides a flat front reflective surface 18.

[0023] As mentioned above, an alternative preferred embodiment would include the use of a plastic material that may be produced with such an indentation 24 as above described through an injection molding process. Such a methodology would reduce both manufacturing complexity by eliminating the grinding step required to introduce the indentation in the glass sheet, as well as, reducing cost.

[0024] Although a preferred embodiment of the invention has been described using specific terms and devices, such description is for illustrative purposes only. The words used are words of description rather than of limitation. It is to be understood that changes and variations may be made by those of ordinary skill in the art without departing from the spirit or the scope of the present invention, which is set forth in the following claims. In addition, it should be understood that aspects of various other embodiments may be interchanged both in whole or in part. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred version contained herein.